WORLD METEOROLOGICAL ORGANIZATION

Environment and Climate Change Canada

Norwegian Meteorological Institute

Russian Federal Service for Hydrometeorology and Environmental Monitoring



ACF

Arctic Climate Forum

# 18th Arctic Climate Forum Consensus Statement

## Summary of 2026 Arctic summer season and the 2026/2027 Arctic winter-spring Seasonal Climate Outlook

3 – 4 November 2026

AARI

Icelandic Met Office

ILMATIETEEN LAITOS
METEOROLOGISKA INSTITUTET
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## Highlights for decision making

**Surface Air Temperature:** During the 2026 boreal summer, the terrestrial Arctic experienced persistent significant positive anomalies to 1991-2020 period in surface air temperature (SAT). Direct observations from polar stations ranked May, June, and September 2026 as the 5$^{th}$, 3$^{rd}$, and 4$^{th}$ warmest on record from 1950, respectively. July and August exhibited minor positive anomalies, ranking 21$^{st}$ and 10$^{th}$. The preliminary rank for June-July-August (JJA) 2026 stands as the 6$^{th}$ highest from 1950. Despite pronounced intra-seasonal and regional variance, these observations align with the multi-decadal linear warming trend for the last 30 years (1997–2026) derived from the ECMWF Reanalysis v5 (ERA5), which identifies the Barents Sea, northern parts of Western and Eastern Siberia and Central Canada as the primary loci of maximum thermal acceleration. Probabilistic multi-model ensemble forecast for the November 2026 to January 2027 period indicate a high probability (>0.50%) of above-normal SAT across the majority of the marine Arctic, Canada, coastal Scandinavia, and Western/Eastern Siberia. Peak probability (0.60 - 0.80) is for Eastern Nordic, Western Siberia, and Central and Eastern Canada.

**Precipitation:** The 2026 boreal summer precipitation regimes exhibited strong spatial heterogeneity, characterized by deficit anomalies (drier conditions) over Central Siberia and Canada, contrasted by surplus anomalies (wetter conditions) across Scandinavia, the Bering Sea, Alaska, and the high-latitude North Pole region. This spatial distribution is consistent with the 30-year linear trend calculated via ERA5 reanalysis. Hydrological discharge models for major Arctic rivers indicate high intermittent variability, with alternating periods of high and low drainage volumes. Probabilistic multi-model ensemble forecast for the November 2026 to January 2027 project above-normal precipitation across most high-latitude zones, with maximum probability (up to 0.80%) focused on the Kara Sea and the northern Barents Sea. Conversely, a suppressed precipitation signal (up to 0.70%) is expected for the southern part of the Western Nordic region (including Iceland), the Labrador Sea, southwestern Canada, and the Pacific coastal part of Alaska. Climatological forecasts remain non-decisive for northern Alaska, the Chukchi and Bering seas, and the central and northern part of Western Nordic region. Experimental snow water equivalent (SWE) forecast suggests widespread winter snow accumulation deficits, with localized surplus exceptions in Eastern Siberia, northern Alaska, and northern and eastern Canada.

**Sea-Ice**: The 2026 minimum daily Arctic sea-ice extent was recorded on September 8–9, reaching 4.73x10$^6$ km$^2$ (the 14$^{th}$ lowest absolute minimum on record from 1979). The corresponding mean monthly value for September was 5.04 x10$^6$ km$^2$(15$^{th}$ lowest on record). While these spatial extent values remain within the established range of post-2007 variability—decreasing by only 0.06 x10$^6$ km$^2$ relative to 2025—numerical volume modeling estimates total Arctic ice volume approached the 2$^{nd}$ lowest absolute value to 2004–2026 baseline period. Thick first-year ice and residual multi-year ice fractions persisted through September within the Chukchi Sea and the eastern sector of the East Siberian Sea. Freeze-up forecast exhibit low-to-moderate confidence, indicating a temporal delay of 5 to 25 days relative to the 2011–2025 mean for Baffin and Hudson Bays, the Canadian Arctic Archipelago, western East Siberia Sea, and the Sea of Okhotsk. Conversely, accelerated freeze-up (5 to 25 days advanced) is anticipated for southern Greenland, the Beaufort, Bering, and Chukchi seas, alongside with eastern East Siberia Sea. The long-range outlook for March 2027 projects near-normal maximum ice extent (relative to the 2012–2026 baseline) in the Greenland, Labrador, and Barents seas, an above-normal signal in the Bering Sea, and a negative anomaly in the Sea of Okhotsk.

**Socio-Ecological Impacts and Anthropogenic Risks:** The documented amplification of Arctic climate variability introduces severe cascading risks across physical, ecological, and socio-economic systems. Accelerated thermal degradation of permafrost frameworks amplifies coastal erosion rates and increases the frequency of coastal flooding. This directly threatens civil infrastructure and severely compromises the operational windows and structural integrity of transport networks (winter ice roads and river crossings). Phenological and lifecycle disruptions are intensifying among marine and terrestrial fauna that rely fundamentally on stable snow and ice for trophic migration, foraging, and reproductive success. Increasing interannual and intra-seasonal stochastic variability lowers the predictability of extreme weather events, undermining risk-mitigation frameworks and strategic planning for indigenous communities and industrial stakeholders. Alternatively, elevated thermal regimes concurrently modify the operational environment, yielding a net reduction in extreme low-temperature exposure for outdoor labor forces.

## Introduction to the Arctic Climate Forum Consensus Statement

Arctic temperatures continue to rise at rates greater than the global average. Both the annual and seasonal air temperatures since early 2000s in the Arctic (northward of 50°N within the ArcRCC-N domain) have been among the highest in the time series of observations for 1900-2026 period (figure 1) though significant interannual variations occur for all Arctic Essential Climate Variables (ECV), including the surface atmospheric, sea-ice and polar ocean ECVs.

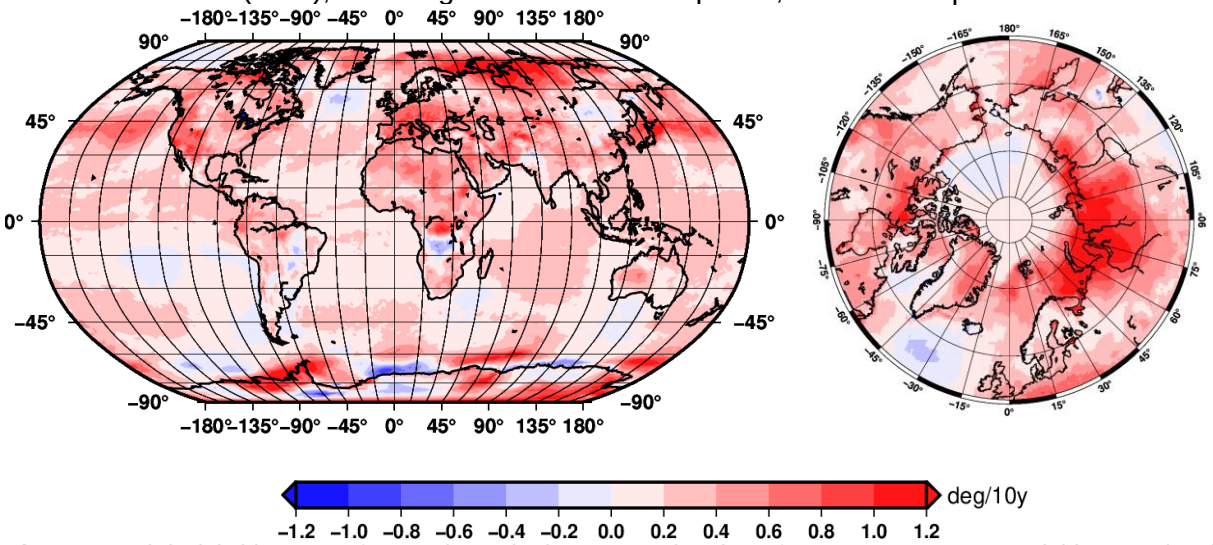



**Figure 1:** Global (with cutout for Arctic region) summer (JJA) surface temperature trend (degrees/10y) for 1997-2026 period (last 30 years). Graphics produced by the AARI. Data source: ERA5 monthly averaged surface air temperature at 2m level.

The role of the ArcRCC-Network is to foster collaborative regional climate services amongst Arctic (hydro)meteorological and ice services, as to meet climate adaptation and decision-making needs among societal actors across the Arctic. Arctic Climate Forums (ACFs) were established in 2018 and are convened by the Arctic Regional Climate Centre Network (ArcRCC-N) under the auspices of the World Meteorological Organization (WMO).

A main product of the ACFs is the Consensus Statements, which synthesize observations, historical trends, forecasts, and in doing so, include regional expertise. These statements include a review of the major climate features of the previous season and outlooks for the upcoming season for temperature, precipitation, sea-ice and several other experimental forecasts.

The elements of the Consensus Statements are presented and discussed at the Arctic Climate Forum (ACF) sessions, with both providers and users of climate information in the Arctic being held twice a year in May/June and October/November. The Consensus Statements are issued around the beginning of the summer melt and sea-ice break-up (May/June) and around the beginning of the winter sea-ice freeze-up (October/November).

This Consensus Statement is an outcome of the 18$^{th}$ session of the ACF held online 3-4 June 2026 coordinated by the Nordic Node of the ArcRCC-Network and hosted by the Swedish Meteorological and Hydrological Institute (SMHI).

## Understanding the Consensus Statement

This consensus statement includes: a seasonal summary, forecast verification for temperature, precipitation, and sea-ice for the previous 2026 Arctic summer season (from May 2026 to September 2026) and an outlook for the upcoming 2026/2027 Arctic winter-spring season (from November 2026 to April 2027) for temperature, precipitation and sea-ice. Experimental products with outlooks for snow water equivalent and weather severity index are also included in this consensus statement. Figure 2 shows the regions, which are defined by the ArcRCC-N members on the basis of accepted regional practices to capture the different geographic features and environmental factors influencing temperature, precipitation and other Arctic ECVs. Figure 3 shows the established shipping routes and regions used for the sea-ice products.




**Figure 2:** ArcRCC-N regions accepted for seasonal summaries and outlooks

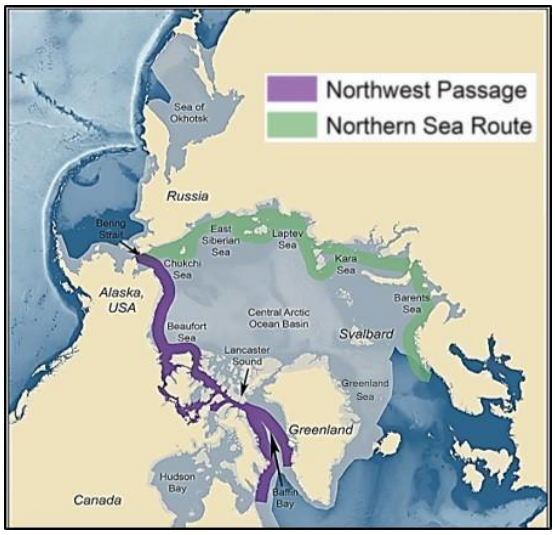



**Figure 3**: Sea-ice Regions. Map Source: Courtesy of the U.S. National Academy of Sciences

Seasonal summaries for temperature, precipitation, sea-ice and other Arctic ECVs are based on a synthesis of routine observations at polar stations and marine mobile platforms, sea-ice analysis from the national ice services, satellite estimates of sea-ice extent and thickness, WMO GCW SeaIceWatch and SnowWatch data, and a set of modern reanalysis products including Copernicus climate change service (ERA5, MEMS, GloFAS-ERA5) and NCEP-NCAR reanalysis. Anomalies of the parameters are given in the majority of cases for the 3rd WMO reference period 1991-2020, which allows to efficiently underline the most recent interannual variability.

The seasonal forecasts for temperature and precipitation are based on thirteen WMO Global Producing Centers of Long-Range Forecasts (GPCs-LRF) models and consolidated by the WMO Lead Centre for Long Range Forecast Multi-Model Ensemble (LC-LRFMME). In terms of models' skill (i.e., the ability of the climate model to simulate the observed seasonal climate), a multi-model ensemble (MME) approach essentially overlays all of the individual model performances. This provides a forecast with higher confidence in the regions where different model outputs/results are consistent, versus a low confidence forecast in the regions where the models don't agree. The MME approach is a methodology well-recognized by the WMO to be providing the most reliable objective forecasts.

Sea-ice and snow water equivalent outlooks are based primarily on the Canadian Seasonal to Interannual Prediction System (CanSIPSv3, 40 ensemble members, 20 each from GEM5.2-NEMO and CanCM5.1p1bc) with additional use of sea-ice forecasts from the Coupled Unified Forecast System (NOAA UFS; 5 ensemble members) and INM-CM5 climate model (INM

RAS/Hydrometcenter of Russia, 30 ensemble members). MME for sea-ice is not yet available; the outlook is a subjective 'ensemble' of probabilistic/deterministic model forecasts. Therefore, for sea-ice the forecast confidence is a subjective assessment of hindcast model skill, ensemble spread and forecast agreement between models. When sea ice extent is at its minimum in September of each year, forecasts are available for the following peripheral seas where there is variability in the ice edge: Barents Sea, Beaufort Sea, Canadian Arctic Archipelago, Chukchi Sea, Eastern Siberian Sea, Greenland Sea, Kara Sea, and Laptev Sea. In addition to these regions, forecasts for sea ice break-up are also available for Baffin Bay, Bering Sea, East Siberian Sea, Kara Sea, Laptev Sea, Chukchi Sea, Barents Sea, Greenland Sea, Hudson Bay, and Labrador Sea.

# Temperature

## Summary for summer 2026

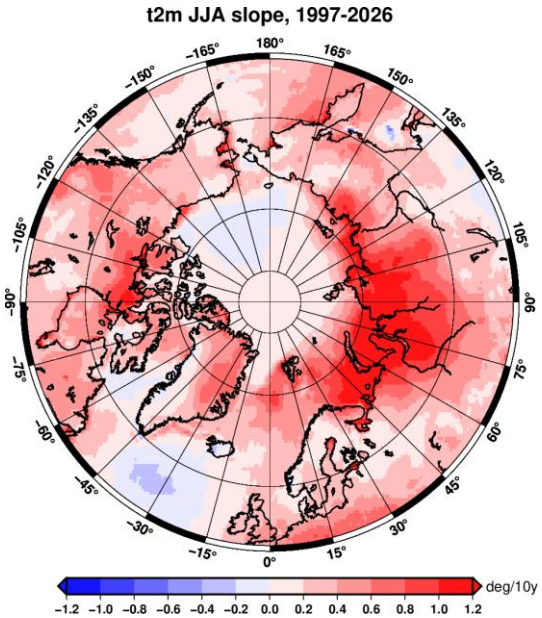



Figure 4a – Summer (June - August) surface air temperature 2m linear trend (degrees/10y) for 1997 – 2026. Data source: CCCS ERA5, graphics produced by the AARI.

Decadal analysis of the summer trends for the past 30 years (Figure 4a) shows that extreme positive values (1.0 degree / 10y and more) are persistent for the parts of the Eastern Nordic, Western and Eastern Siberia, Central Canada while overall negative trends are estimated for southern part of West Nordic and northern part of Alaska region. Negative anomalies (to 1991-2020 period) in general occurred in the mid 20th century.

Based on direct observations at surface WMO GBON stations (Figure 4b, table 1), during start of summer 2026 (May-June) record positive anomalies of the surface air temperature (SAT) were observed for Western Siberia (1st in row in June – here and further from 1950) with negative anomalies for Western Nordic (49th in row in May), Eastern Siberia (33rd in row in May) and Alaska and Western Canada (40th in May). During mid-summer (July-August) similar extremely positive anomalies were observed over the Western Siberia (5th – 3rd) and Central and Eastern Canada (3rd in July) with negative anomalies for Eastern Nordic (26th – 33rd), Eastern Siberia (32nd in Aug), Chukchi and Bering (30th in July) and Alaska and Western Canada (49th in Jul). By the end of summer in September 2026 record positive anomalies were observed again over Western Siberia (1st in row) with summary rank 1 for JJA 2026. Conclusions for the Central Arctic (due to lack of in-situ observations) are done on reanalysis (Figure 4c), and include predominance of negative or slightly negative anomalies during the whole period.

For the whole land Arctic extremely or positive anomalies were observed during the whole summer period with ranks 5th, 3rd and 4th in May, June and September and 21st and 10th in July – August with overall preliminary rank 6th for JJA 2026 (Table 1), though large regional and inner season variations and changes in anomaly sign continue to occur. In general, much lesser positive anomalies are normally observed for the Arctic regions with a greater share of the sea area – the Western Nordic and Chukchi-Bering. In general, that corresponds to the last 30 years (1997-2026) JJA SAT linear trend (Figure 4a) where the greatest positive values are assessed for Barents Sea, Siberia and Central Canada.

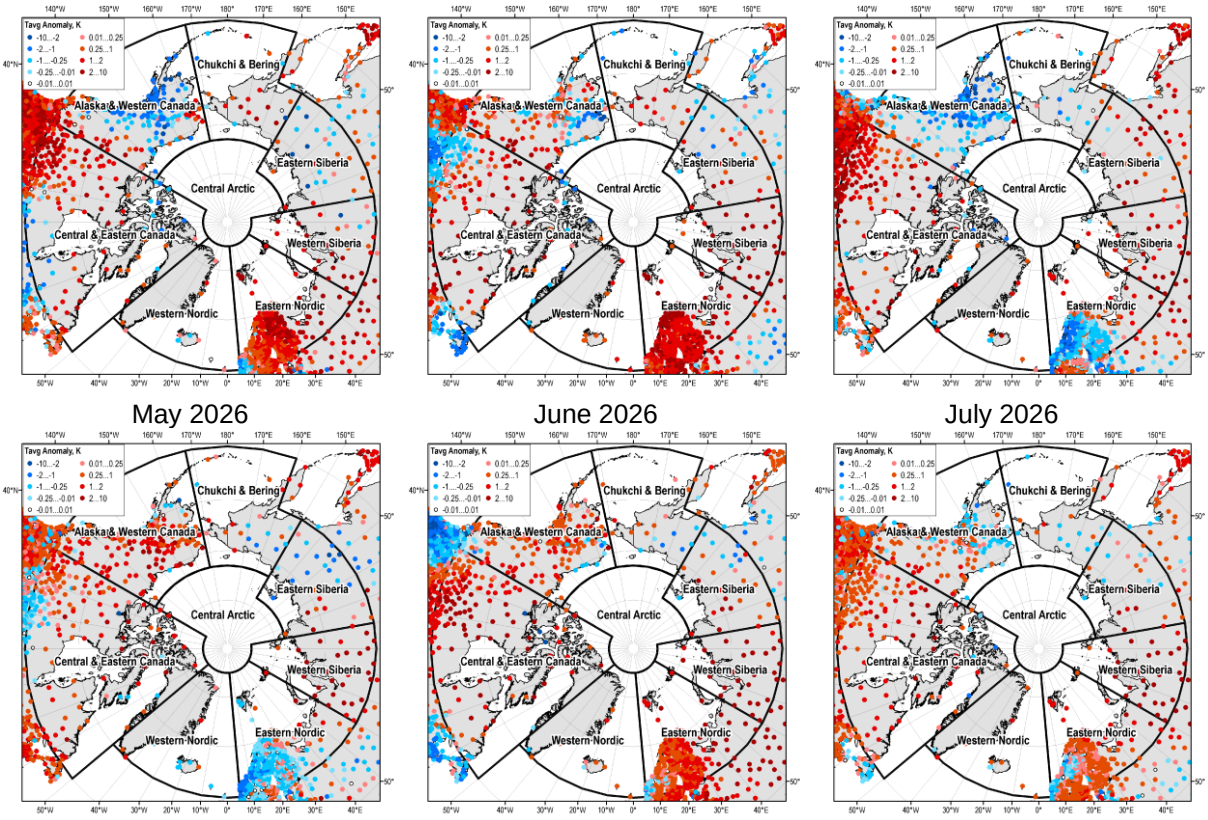
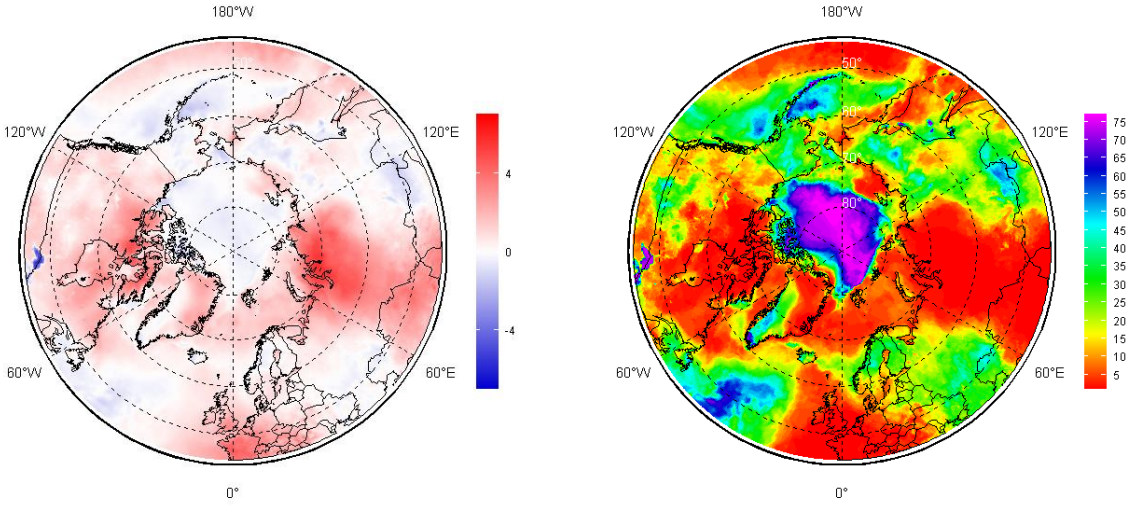



**Figure 4b:** Surface air temperature (2m, °C) monthly and seasonal anomalies relative to 1991-2020 period for May – September 2026. Data source: WMO GTS, graphics produced by AARI.




June – August 2026 (JJA)

**Figure 4c:** Summer 2026 SAT anomalies, left (ref. 1991-2020), and ranks, right (ref. 1950-2026). Maps produced by the AARI. Data source: CCCS ERA5

**Table 1** – Surface air temperature anomalies (reference period 1991-2020) and consecutive ranks in brackets (reference period 1950-2026) for May – September 2026 by the ArcRCC-N regions based on observations at polar stations

| Arctic region / period | Western Nordic | Eastern Nordic | Western Siberia | Eastern Siberia | Chukchi & Bering | Alaska & Western Canada | Central & Eastern Canada | Arctic |
|---|---|---|---|---|---|---|---|---|
| May | -0.45(49) | +1.58(07) | +1.71(08) | -0.47(33) | +0.82(12) | -0.51(40) | +1.04(18) | **+0.89(05)** |
| June | +0.31(16) | +1.88(07) | **+4.71(01)** | +0.80(12) | +0.18(19) | +0.34(13) | +0.79(12) | **+1.24(03)** |
| July | +0.69(08) | -0.21(26) | **+1.97(05)** | **+1.86(04)** | -0.46(30) | -0.93(49) | **+1.49(03)** | +0.12(21) |
| August | +0.11(22) | -0.20(33) | **+3.18(03)** | -0.16(32) | +0.40(17) | +1.09(07) | +0.55(16) | +0.52(10) |
| September | +0.90(11) | +1.12(09) | **+4.21(01)** | +0.87(16) | +0.22(24) | +0.69(23) | +1.60(07) | **+1.25(04)** |
| Jun-Sep | +0.31(17) | +0.49(18) | **+3.30(01)** | +0.79(10) | +0.00(22) | +0.17(19) | **+0.93(04)** | +0.63(06) |

## Verification of summer 2026 forecast

The JJA 2026 temperature forecast was verified by objective comparison between the forecast (Figure 5, left) and ERA5 reanalysis (Figure 5, right), region by region with results summarized in Table 2. The verification score represents the percentage of correct forecasts. It compares the forecasted and observed categories (above normal, near normal, or below normal temperature or precipitation) without considering the forecast probabilities associated with each category. In other words, only the most likely category is evaluated. This deterministic metric indicates the percentage of correct forecasts over the selected region.

Against ERA5 reanalysis (Figure 5, right): above normal temperatures were mostly accurately forecasted for the Western and Eastern Nordic (76% and 75%), Western Siberia (94%) and Central and Eastern Canada (72%). Forecasts were partially correct for Eastern Siberia (53%) and not correct in the Alaska and Western Canada (26%) and Chukchi and Bering (32%) regions. Considering all Arctic regions (60-90 deg) the objective score is 60%. Similar results, although with some differences, are found when evaluating the MME against alternative reanalysis datasets, such as CFSR (Table 2).

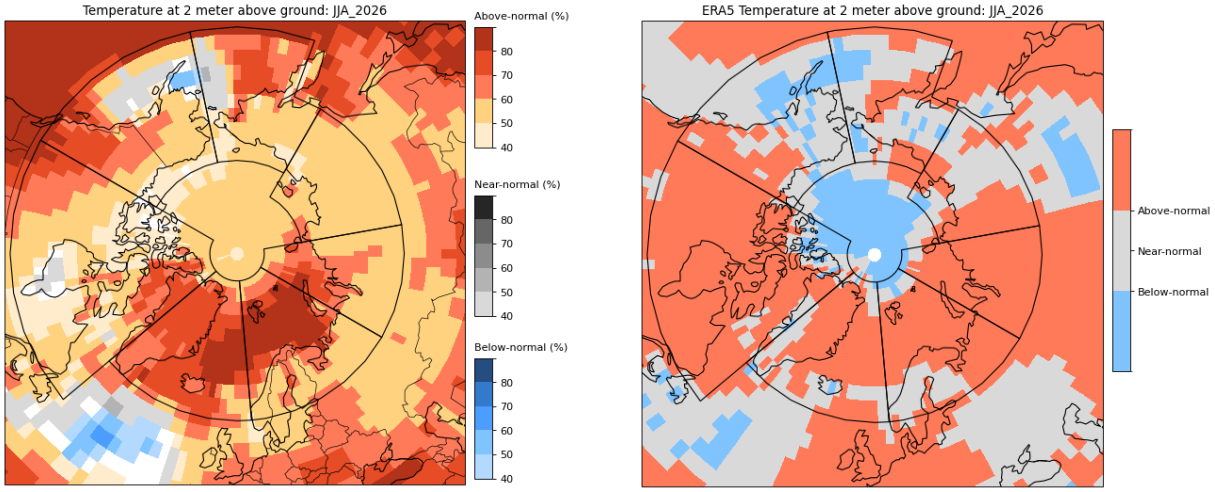


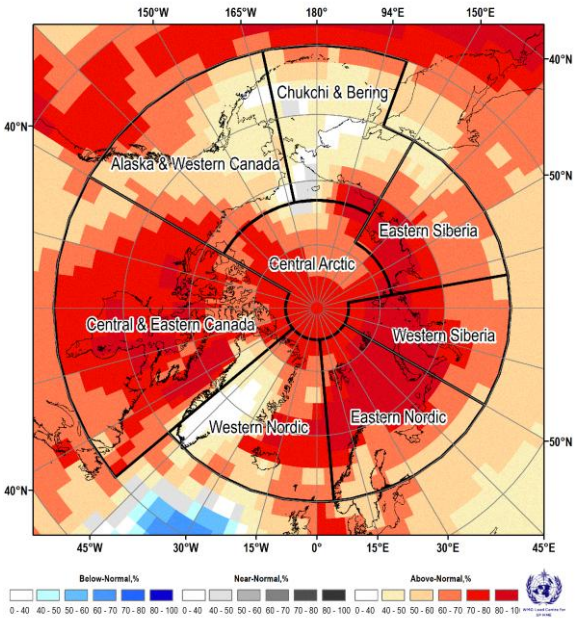

**Figure 5**: (left) Multi-model ensemble (MME) probability forecast (published on 2026-05-14) for surface air temperature at 2m (left) for June - August 2026. Three categories: below normal (blue), near normal (grey), above normal (red); no agreement amongst the models is shown in white. Source: www.wmolc.org. (Right): ERA5 reanalysis for air temperature for June - August 2026.

**Table 2** – Objective comparison of the surface air temperature anomaly for JJA 2026 of the MME probabilistic forecast, ERA5 and CFSR reanalysis. Percent correct (PC) skill score (%).

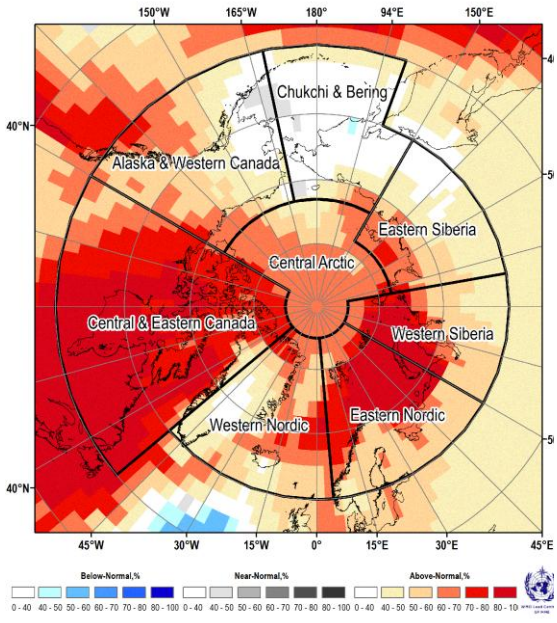
| Region | PC (against ERA5),% | PC (against CFSR), % |
|---|---|---|
| Alaska & Western Canada | 26 | 17 |
| Central & Eastern Canada | 72 | 57 |
| Western Nordic | 76 | 67 |
| Eastern Nordic | 75 | 80 |
| Western Siberia | 94 | 90 |
| Eastern Siberia | 53 | 46 |
| Chukchi & Bering | 32 | 10 |
| Arctic 60-90N | 60 | - |

## Outlook for November – January 2026/2027

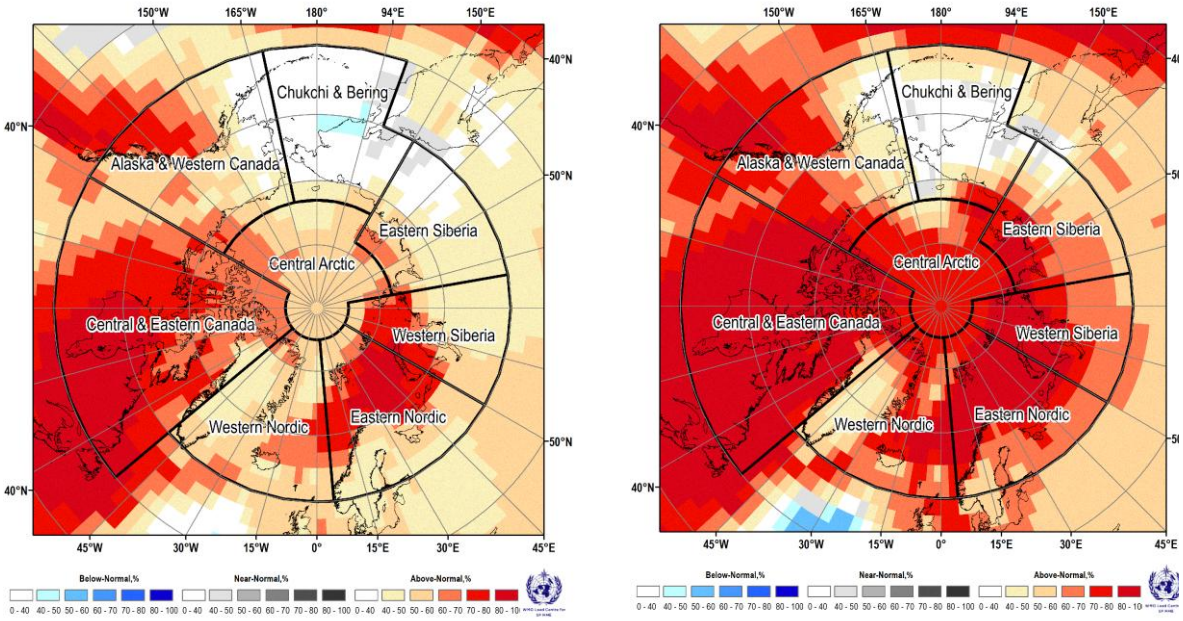
For the November 2026 – January 2027 period, there is a probability of 50% or more that temperatures will be above normal in most of the marine Arctic, Canada and coastal Nordic, Western and Eastern Siberia (Figure 6, bottom right map: red areas; Table 2). The highest probabilities for an above-normal summer (60-80% or more) are in Eastern Nordic, Western Siberia, Central and Eastern Canada (Figure 6: dark red areas; Table 3). Normal temperatures are expected for Chukchi and Bering and parts of Alaska (up to 50%). Negative anomalies are expected south of Greenland Sea (up to 60%), though outside of the ArcRCC-N (Figure 6, bottom right map: light blue areas; Table 2).




November 2026




December 2026




January 2027 NDJ 2026/2027

**Figure 6:** Multi model ensemble 2-meter temperature probability forecast for November 2026 – January 2027 issued 14 October 2026. Redder color indicates higher probability for above normal temperature, bluer color indicates higher probability for below normal temperature, grayer color indicates higher probability for near-normal temperature. White color indicates no agreement amongst the models. Source: www.wmolc.org.

**Table 3 –** November 2026 – January 2027 outlook: Arctic regional forecasts for surface air temperature

| **Arctic Region** | **MME Temperature Forecast Agreement** | **MME Temperature Forecast** |
|---|---|---|
| Alaska and Western Canada | Low (western and marine part), moderate to high (eastern part) | Above normal with exception of normal for Gulf of Alaska and part adjacent to Bering Strait |
| Central and Eastern Canada | High | Above normal |
| Western Nordic | Low to moderate over Greenland and Iceland, high in marine part | Above normal |
| Eastern Nordic | Moderate (Fennoscandia), high elsewhere | Above normal |
| Western Siberia | High with to moderate in the southern part | Above normal |
| Eastern Siberia | High, moderate to low in southern part | Above normal with exception of normal in southeastern part |
| Bering and Chukchi | Low to moderate with exception of high for Eastern Siberia Sea | Normal with exception of above normal for the Eastern Siberia Sea |
| Central Arctic | High with exception of part adjacent to Chukchi Sea | Above normal, normal for area adjacent to Chukchi Sea |

*: See non-technical regional summaries for greater detail

# Precipitation

## Summary for winter-spring 2025/2026

of wetter/drier and colder/warmer weathe

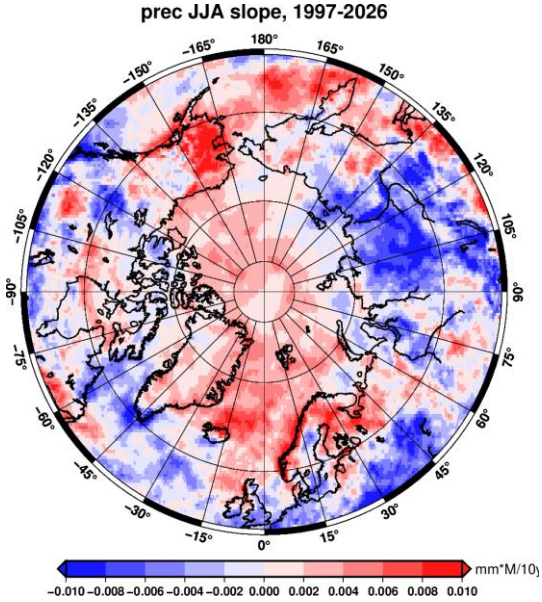



Figure 7a – Summer (June - August) surface precipitation linear trend (mm*month/10y) for 1997 – 2026. Data source: CCCS ERA5, graphics produced by the AARI.

Decadal analysis of the suumer trends for the past 30 years (Figure 7a) shows that low positive values (up to 0.01 mm*month/10y) are persistent for most of the marine Arctic, Greenland, Bering Sea, eastern part of Alaska and Fennoscandia while overall negative trends are estimated for parts of Western Siberia and Eastern Siberia. Intermittent trends are estimated for Canada, western part of Alaska, land Bering and Chukchi region, Eastern Nordic.

In general, during the summer season drier conditions (Figure 7b) dominated over Central Siberia and Canada regions which is similar to 2025. Wetter conditions dominated over the Nordic, Bering Sea Alaska and North Pole regions. Same as for the surface air temperature, that corresponds to the last 30 years (1997-2026) linear trend (Figure 7b). Based on ERA5-GloFAS reanalysis estimates of the summer 2026 Arctic rivers discharge (Figure 7b, for monthly values see corresponding presentation material) point out to greater drainage for Yenisei (June, July), Lena (July, August), Kolyma (July), Mackenzie (August) and Yukon (July, August) and to lesser drainage than normal for Mackenzie (May), Kolyma (May, June), Yenisei (May, August), Lena (May, June) rivers. Such drainage situation this summer is somewhat similar to 2023-2025 both for Eurasian Arctic and American sector

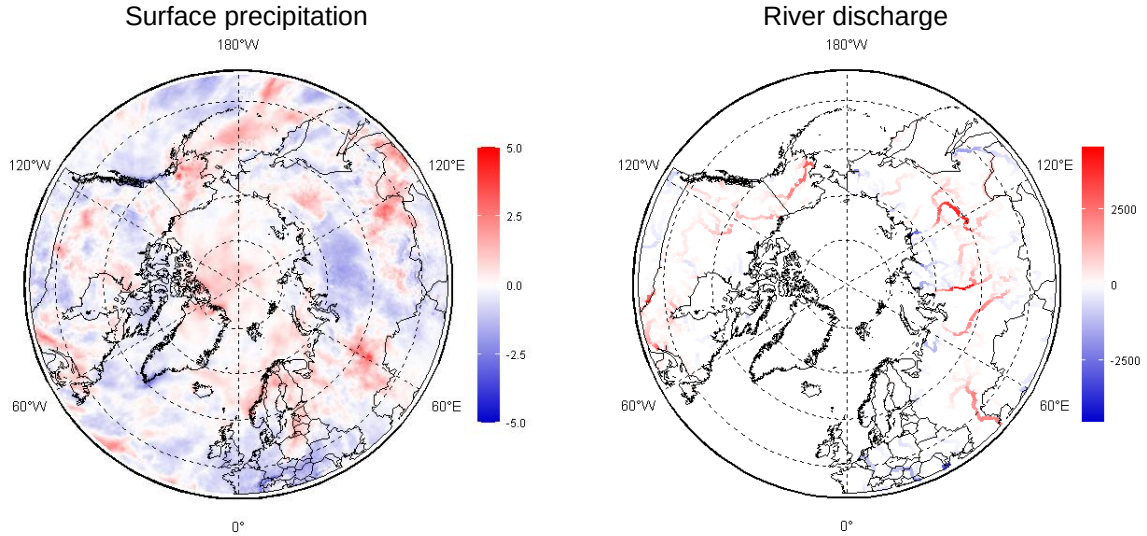



**Figure 7b –** June – August 2026 surface precipitation (left) and river discharge (right) anomalies (ref. 1991-2020). Maps produced by the AARI. Data source: CCCS ERA5 and ERA5-GloFAS.

## Verification of summer 2026 forecast

The June – August 2026 precipitation forecast was verified by objective comparison between the forecast (Figure 8, left) and ERA5 reanalysis (Figure 8, right), region by region.

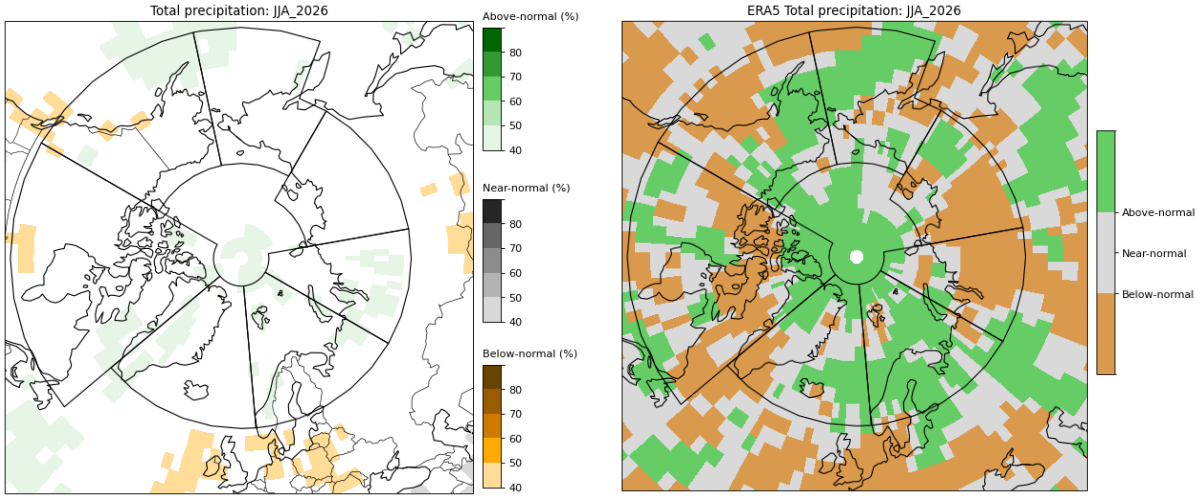
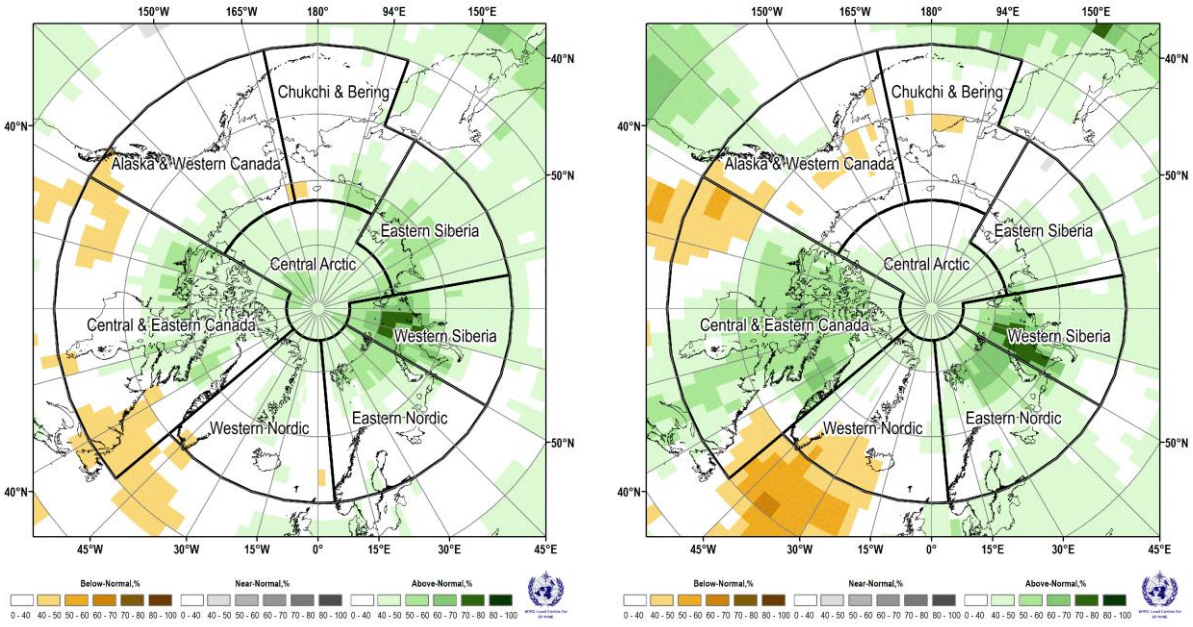



**Figure 8**: (left) Multi-model ensemble (MME) probability forecast (published on 2026-05-14) for surface precipitation for June - August 2026 (left). Three categories: below normal (orange), near normal (grey), above normal (green); no agreement amongst the models is shown in white. Source: www.wmolc.org. (Right): ERA5 reanalysis for precipitation for June - August 2026.

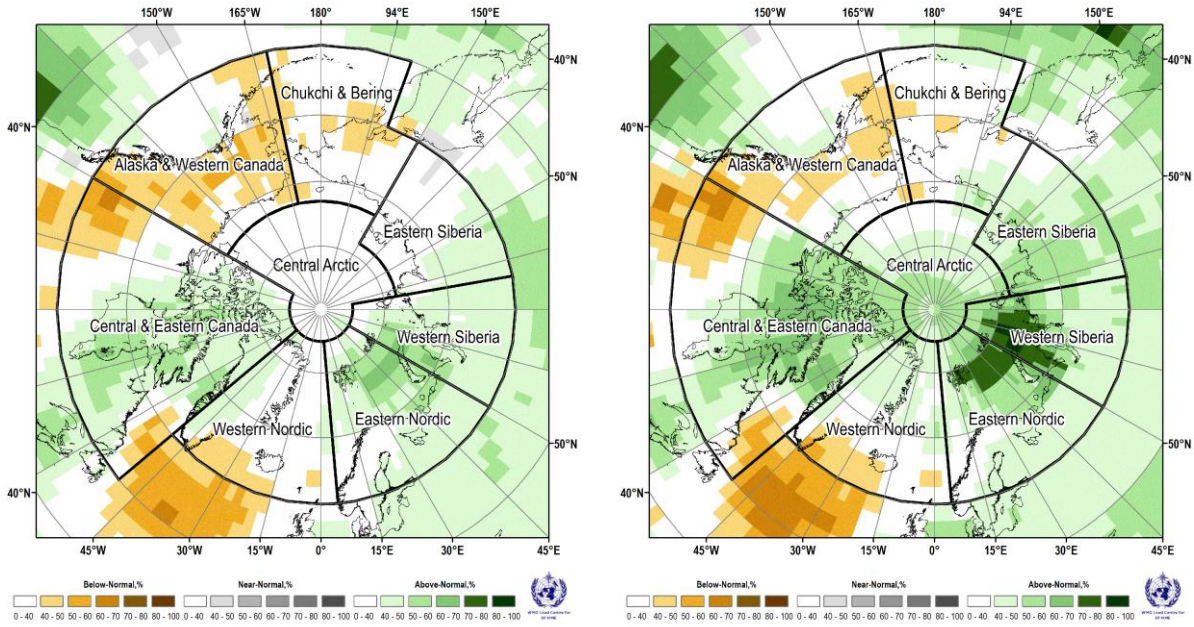
Overall, precipitation forecast was mostly non-decisive (Figure 8).

## Outlook for November 2026 – January 2027

For November 2026 – January 2027 period (figure 9 bottom right panel) over larger part of the Arctic region above normal precipitation is expected (Figure 9: green areas, Table 4) with the higher probability up to 80% for the Kara Sea and northern part of the Barents Sea (Figure 9: dark green areas, Table 4). Below normal precipitation (Figure 9: orange areas, Table 4) with probability 40-70% is expected for southern part of the Western Nordic, including Iceland, Labrador Sea, southwestern Canada and Pacific coastal areas of Alaska. Non-decisive forecast (Figure 9: white, light green and light orange areas, Table 4) is for the northern part of Alaska, most of Chukchi and Bering and northern part of Western Nordic region.




November 2026 December 2026




January 2026 November 2026 – January 2027

**Figure 9:** Multi model ensemble probability forecast for surface precipitation for November 2026 – December 2027. Greener color indicates higher probability for above normal precipitation (wetter), brown color indicates higher probability for below normal precipitation (drier), grayer color indicates higher probability for near-normal precipitation, white color indicates no agreement amongst the models. Source: www.wmolc.org.

Table 4 – November 2026 – January 2027 outlook: forecasted Arctic precipitation by region

| **Region (see Fig.2)** | **MME Precipitation Forecast Agreement*** | **MME Precipitation Forecast** |
|---|---|---|
| Alaska and Western Canada | Low | Below normal in southern coastal areas, no model agreement for other areas |
| Central and Eastern Canada | Low to moderate | Above normal for northern part including Canadian Archipelago, below normal in southwestern part and the Labrador Sea, no model agreement for other parts |
| Western Nordic | Low | Mostly no model agreement, below normal in southern part |
| Eastern Nordic | Low to high | Above normal, with probability up to 80% for the Svalbard, FJL and northern Barents Sea, no model agreement over Fennoscandia |
| Western Siberia | Low to high | Above normal, with probability up to 80% for the Kara Sea |
| Eastern Siberia | Low to moderate | Above normal |
| Chukchi and Bering | Low | Mostly no model agreement, below normal in south-eastern part |
| Central Arctic | Low | Above normal in North Pole region, no model agreement elsewhere |

*: See non-technical regional summaries for greater detail

# Polar Ocean

## Summary for summer 2026

Based on CCCS CMEMS during summer 2026 the higher (to 1993-2020) 15 m upper ocean layer Heat Content (HC) was assessed for Greenland (July-September), Barents, Kara, parts of East Siberian Sea, Hudson Bay and most of Canadian Archipelago (Figure 10, for monthly values see corresponding presentation material). Lower or zero anomaly of HC was assessed for west Greenland waters (May-July), Beaufort, Chukchi, parts of East Siberia Seas with somewhat neutral or higher anomaly over the Arctic Basin. Bering Sea had intermittent pattern of positive and negative HC anomalies.
For the current summer season CCCS CMEMS numerical models point to both positive pH 2m anomalies for the Arctic Basin, Laptev, Chukchi, Bering Okhotsk Seas, Hudson Bay and negative pH anomalies (acidification) for the Barents, most of the Kara, parts of East Siberian, Greenland Seas, coastal part of Canadian Arctic, to the 1993-2020 period (Figure 10, for monthly values see corresponding presentation material). That is in general similar to 2022-2025, pointing to both acidification processes in the Barents, Kara Seas and large interannual variability for most parts of the Arctic Ocean – the area, where following the UN World Ocean Assessment (WOAIII) interdecadal pH trends signal/noise ratio remain <1[1].

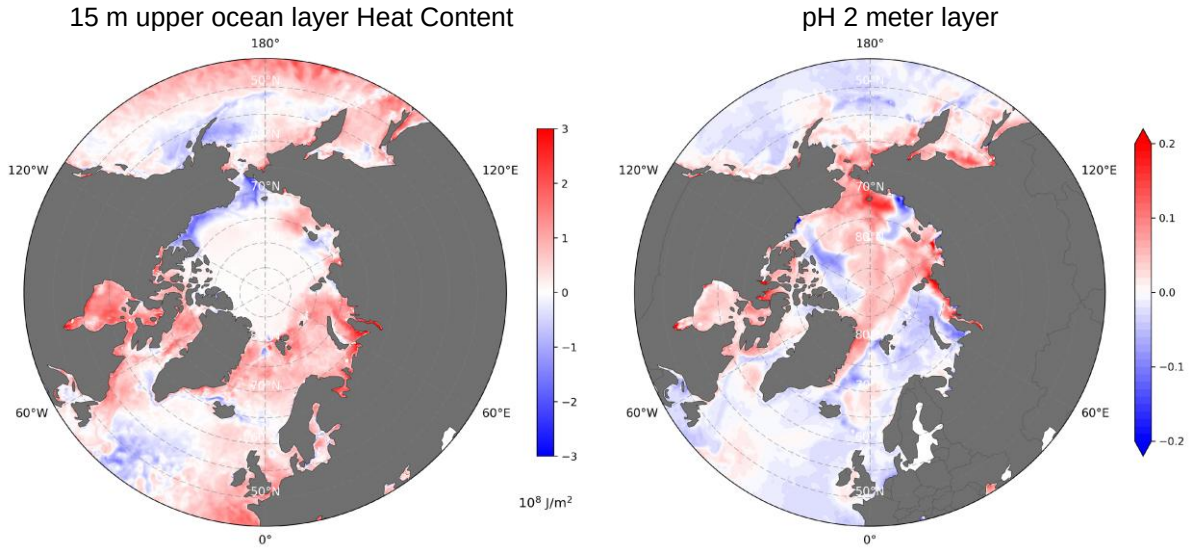



**Figure 10:** June – August 2026 upper 15 m ocean layer heat content (left) and pH 2m ocean layer (right) anomaly (ref. 1993-2020 period). Maps produced by the AARI. Data source: CCCS MEMS.

# Sea-Ice

## Summary for summer 2026

In addition to positive ice thickness anomaly in the Beaufort, Chukchi Seas (see presentation matrial for further details) the negative and close to normal ocean heat capacity (HC) anomaly (to 1993-2020) in upper 15m during May-June 2026 slowed ice melt in these regions. Further in season, dominance of positive surface air temperature anomalies over the western Eurasian Arctic, parts of Canadian Arctic stimulated ice melt in these regions. Opposite negative or zero anomalies preserved ice cover in parts of Chukchi, Eastern Siberia, Beaufort Seas and slowed ice reduction in the area towards end of summer 2026.

[1] Surface sea waters in the Arctic have a pH of about 8.1, with a range of about 7.5 to 8.4. The term ocean acidification refers to an increase in acidity (i.e., a decrease in pH). AMAP, 2019. Arctic Ocean Acidification Assessment 2018: Summary for Policy-Makers. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. 16 p.

Minimum daily 2026 ice extent, 14th in row or 4.73x10$^6$ km$^2$ (15th in row or 5.04x10$^6$ km$^2$ for mean monthly value) was reached during 8-9 Sep 2026 or on the same dates as in 2025 though slightly less by 0.06x10$^6$ km$^2$ (Figure 11). This value is well within the scale of Arctic ice extent variability since 2007. Similar though less in area zones of thick first-year and residual ice dominated till September in the Chukchi and eastern part of the Eastern Siberian Sea with summer sea ice extent in this NSR section close to 1978-2026 median (Figure 12).

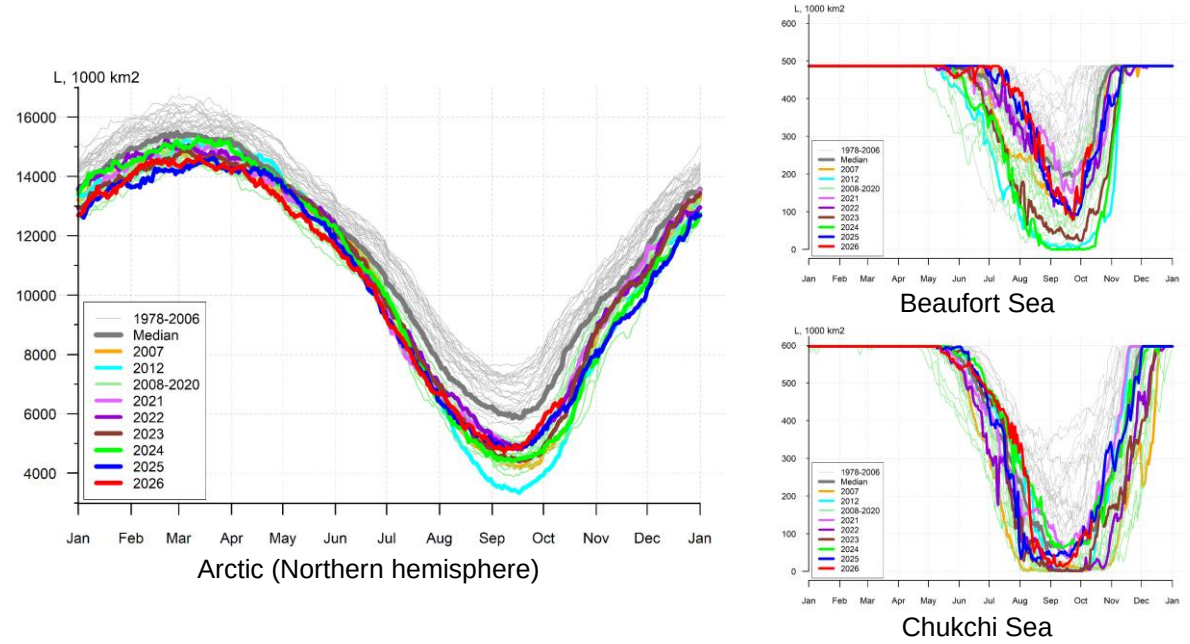



**Figure 11:** Arctic (Northern Hemisphere), Bering and Sea of Okhotsk daily sea-ice extent for October 1978 – October 2026. Graphics produced by the AARI. Data source: NSIDC.

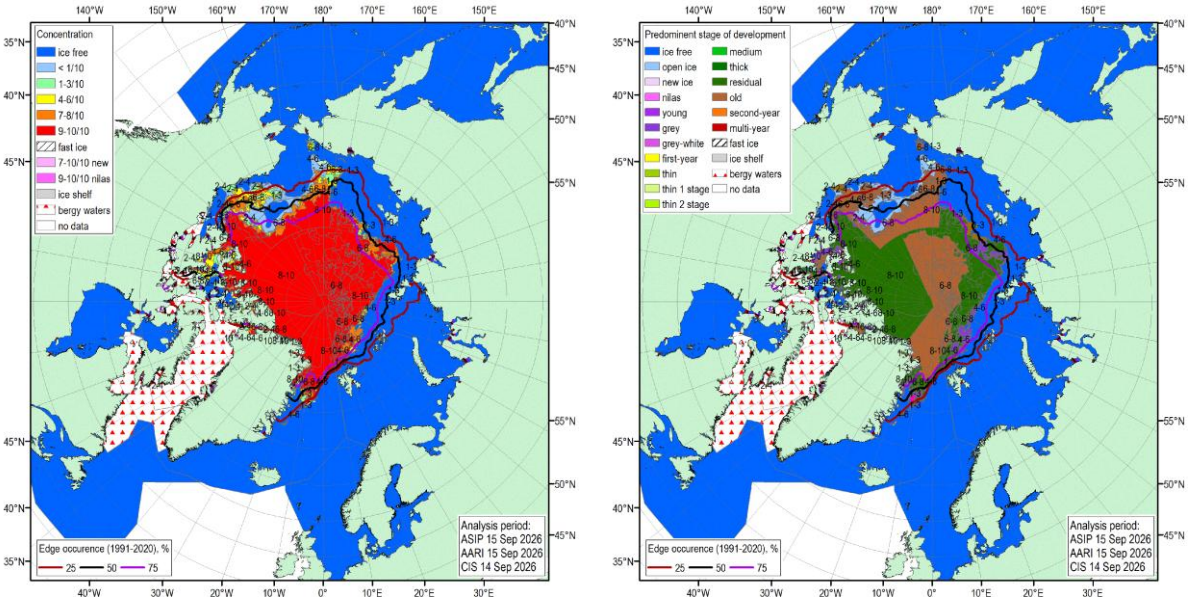



**Figure 12:** Blended Arctic sea-ice chart (AARI, ASIP, CIS) for 14-15 September 2026 and sea-ice edge occurrences for 11-15 September for 1991-2020 reference period, left: total concentration, right: predominant stage of development. Graphics produced by the AARI

Summer 2026 Arctic general ice conditions were somewhat lighter than in 2025 but in general similar to 2021-2025 with several exceptions. Sea ice in the Kara Sea was present till August 2026 or later than in 2025 though further in season the ice edge was in more northward position. The southern part of the NSR as well as the eastern part of the NWP experienced minimum ice extent on 15-16 September or close to climatic norm. Based on modelling (see polarportal.dk), rank of the total Arctic ice volume for summer 2026 is close to the 2nd lowest for 2004-2026.

## Sea-ice Outlook verification for summer 2026 ice extent and break-up dates

The forecast for summer 2026 and winter 2026/2027 sea-ice parameters extent was primarily based on output from Canadian Seasonal to Inter-annual Prediction System (CanSIPSv3 with 40 ensemble members including 20 GEM5.2-NEMO, 20 CanESM5.1p1bc) with additional use of sea ice guidance from NOAA UFS (5 ensemble members) and INM-CM5 (20 ensemble members). Outlook is based on a combination of probabilistic and deterministic model forecasts; no formal multi-model ensemble (MME) available. Estimation of confidence is based on hindcast skill, ensemble spread and agreement between models.

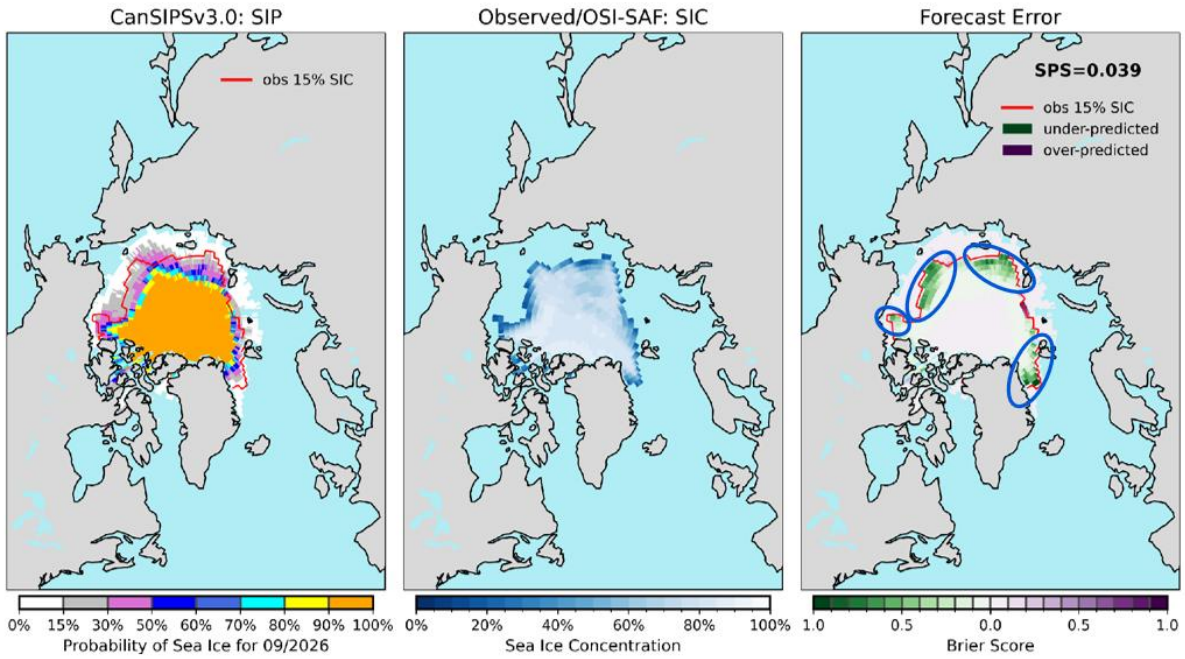
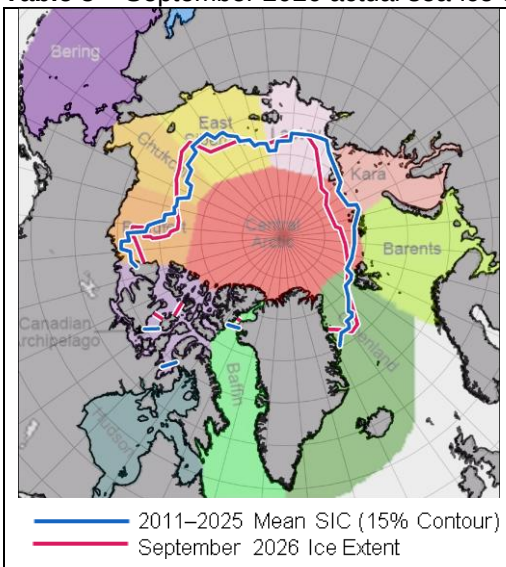



**Figure 13:** Verification of CanSIPSv3 probabilistic forecast for September 2026: Probability of ice concentration exceeding 15% with forecast initialized May 1, 2026.

**Table 5** – September 2026 actual sea-ice extent versus vs ArcRCC-N outlook




| Region | Forecast Confidence | Outlook * | Observed * | Verification |
|---|---|---|---|---|
| Greenland Sea | Moderate | Below normal; Near normal (E) | Below normal; Above normal (E) | ~Hit |
| Canadian Arctic Archipelago | Low | Below normal | Below normal | Hit |
| Beaufort Sea | Moderate | Below normal | Below normal | Hit |
| Chukchi Sea | Moderate | Below normal | Above normal | Miss |
| East Siberian Sea | Moderate | Below normal | Below Normal | Hit |
| Laptev Sea | Moderate | Below normal | Below normal | Hit |
| Kara Sea | Moderate | Below normal | Below normal | Hit |
| Barents Sea | Moderate | Below normal | Below normal | Hit |

* Outlook and observed classifications relative to the 2011–2025 mean ice edge (15% SIC)

Break-up date is defined as the first day of at least 10 consecutive days with ice concentration below 50%. Normal break-up is based on 2011-2025 reference period. Break-up categories include red-orange as early break-up, yellow-light blue as near normal break-up and blue as late break-up. Break-up forecast confidence uses three confidence levels (low, moderate and high), based on the skill of previous forecasts.

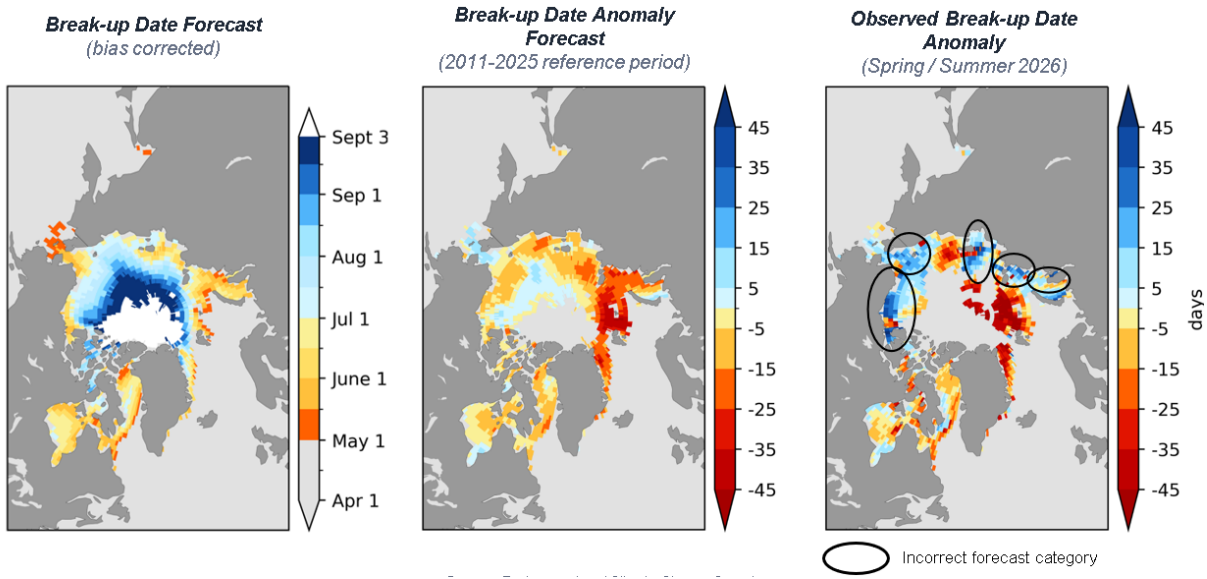



**Figure 14a:** Verification of CanSIPSv3 deterministic forecast for summer 2026 break-up. CanSIPSv3 deterministic forecast is from May 1, 2026.

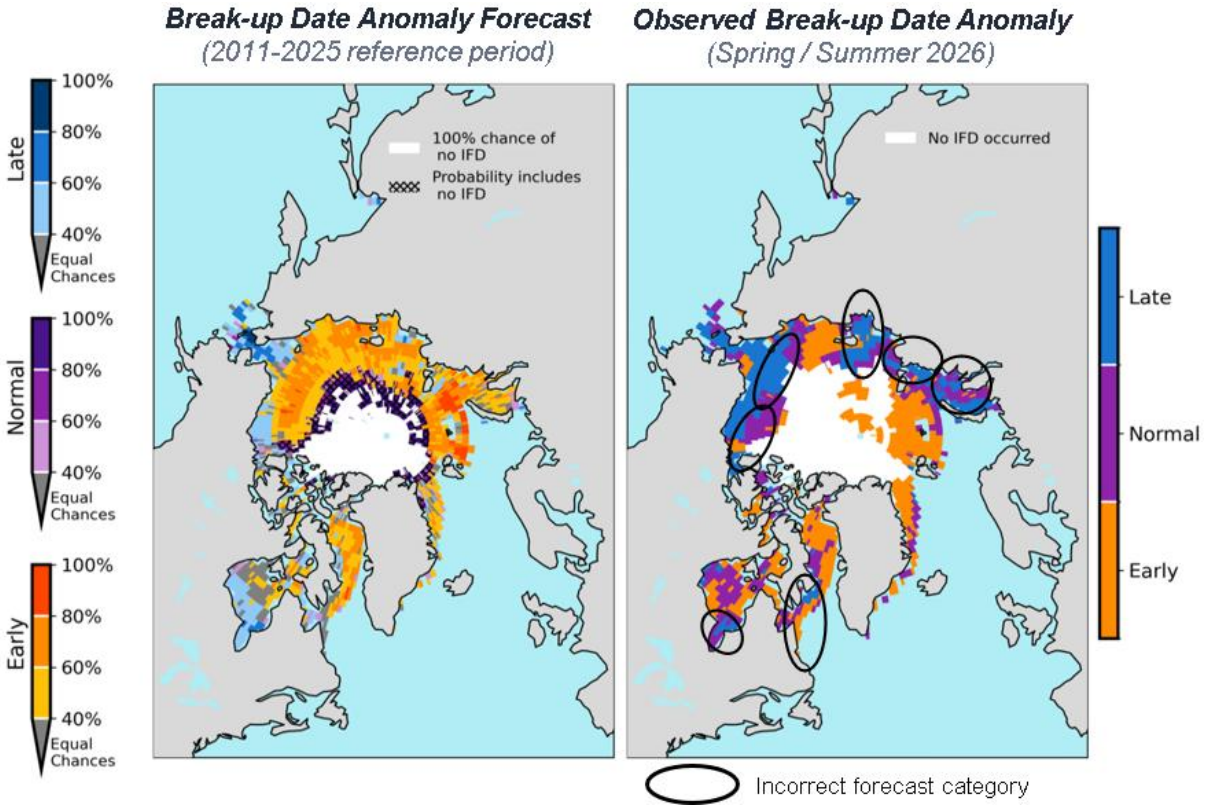



**Figure 14b:** Verification of CanSIPSv3 probabilistic forecast for summer 2026 break-up. CanSIPSv3 probabilistic forecast is from May 1, 2026.

**Table 6** -Verification of ArcRCC sea-ice break-up outlook for 2026

| Region | Forecast Confidence | Outlook | Observed | Verification |
|---|---|---|---|---|
| Greenland Sea (N) | Low | Early | Early | Hit |
| Baffin Bay/Lab Sea | Moderate | Early | Early; Normal/Late (SW) | Hit; Miss (SW) |
| Hudson Bay | Low | Near-normal; Early (NE) | Normal/ Early; Normal/ Late (SE) | ~Hit |
| CAA | Low | Early | Early | Hit |
| Beaufort Sea | Moderate | Early; Late (NE) | Late | Miss |
| Chukchi Sea | Moderate | Early; Late (coast) | Late | Miss; Hit (Coast) |
| East Siberian Sea | Low | Early | Early | Hit |
| Bering | High | Late | Late | Hit |
| Laptev Sea | Low | Early | Late | Miss |
| Kara Sea | High | Early | Late | Miss |
| Barents Sea | High | Early | Early | Hit |

## Outlook for winter 2026/2027 sea-ice freeze-up

Freeze-up date is defined as the first day of at least 10 consecutive days with ice concentration above 50%. Normal freeze-up is based on 2011-2025 reference period. Freeze-up outlook includes three categories: early freeze-up marked in blue, near normal freeze-up marked in yellow-light blue and late freeze-up marked in red-orange. The freeze-up outlook uses three confidence levels - low, moderate and high, based on the skill of previous forecasts.
Later by 5-25 days freeze-up than in 2011-2025 is predicted with low and moderate confidence for the Baffin and Hudson bays, Canadian Archipelago, western East Siberia and Sea of

Okhotsk with earlier freeze-up by 5-25 days for southern Greenland, Beaufort, Bering, eastern part of East Siberia and Chukchi seas.

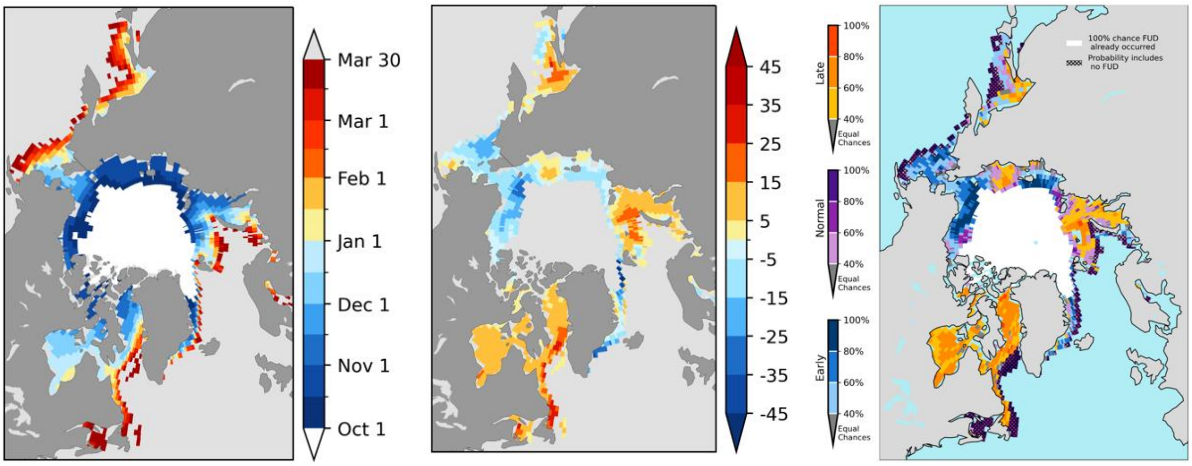



**Figure 15:** Left - deterministic freeze-up forecast for winter 2026/2027 from CanSIPSv3, center - deterministic freeze-up date anomaly from 2011-2025 average, right - CanSIPS v3 Probability for winter 2026/2027 for Early, Near-Normal or Late freeze-up. Forecast from 1 October 2026.

**Table 7** – Winter 2026/2027 outlook: regional forecasts for sea-ice freeze-up date anomalies

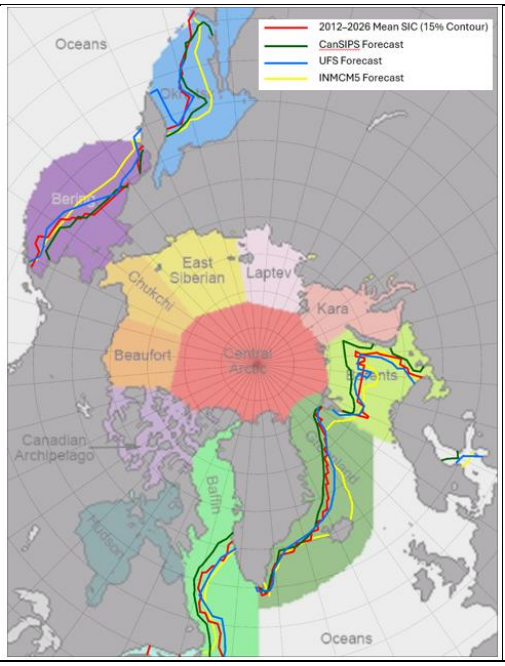
| Region | Forecast Confidence | Outlook |
|---|---|---|
| Greenland Sea (S) | Low | Early |
| Baffin Bay | Moderate | Late |
| Labrador Sea | Low | Late |
| Hudson Bay | Moderate | Late |
| CAA | Low | Late |
| Beaufort Sea | High | Early |
| Bering Sea | Low | Early |
| Sea of Okhotsk | Low | Late |
| Chukchi Sea | High | Early |
| East Siberian Sea | Moderate | Early (E); Late (W) |

## Outlook for March 2027 maximum sea-ice extent

Model ice edges represent the 50% probability of monthly mean SIC ≥15%. The historical reference is the 15% contour of the 2012–2026 mean SIC.

Outlook for March 2027 is near normal to 2012-2026 maximum ice extent ice for Greenland, Labrador and Barents seas, above normal for the Bering Sea and below normal for the Sea of Okhotsk.

**Table 8 – March** 2027 outlook: sea-ice extent anomalies by regions




| Region | Forecast Confidence | Outlook |
|---|---|---|
| Greenland Sea | Low | Near normal |
| Labrador Sea | Low | Near normal |
| Bering Sea | Low | Above normal |
| Sea of Okhotsk | Low | Below normal |
| Barents Sea | Low | Near normal |

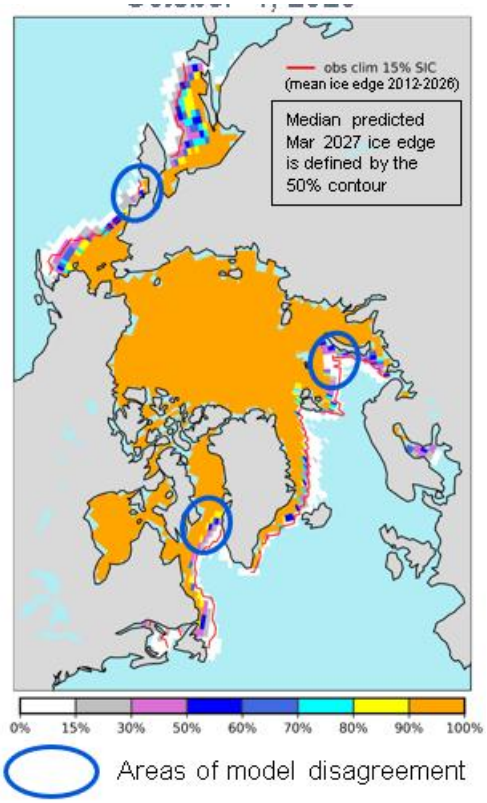



**Figure 16:** CanSIPSv3.0 March 2027 Sea-ice extent (probability of sea-ice total concentration exceeding 15%). Blue circle marks areas of disagreement between CanSIPSv3.0 (forecast from 1 October 2026), UFS NOAA (forecast from 21-25 September 2026) and INMCM5 INM RAS / Hydrometcenter of Russia (forecast from 1 October 2026).

## Bioclimatic indexes (experimental product)

Unfavorable weather and natural factors in the Arctic include low temperatures, high wind speed (i.e. cooling), high humidity complemented by lack of sun and geomagnetic phenomena. Influence of those factors as levels of weather dis(comfort) or bioclimatic indexes are commonly done for the mid-latitude, sub-polar and polar regions using the Bodman's weather severity index *S* (developed specifically for the Arctic cold season, based on a derivative of surface wind speed and air temperature and scaled from slightly severe to extremely severe)[2], or the effective temperature ET[3] (year-round, based on a derivative of surface air temperature and relative humidity and scaled from comfort to extreme discomfort). Description of S and ET levels is presented on figure 17a.

| S | Severity of the weather | Working conditions |
|---|---|---|
| S<2 | Slightly and less severe | Slightly uncomfortable |
| 2 ≤ S <5 | Severe and very severe | Uncomfortable |
| 5≤ S | Extremely severe | Extremely discomfort |

Bodman's index levels

| ET | Thermal sensation | Physiological effect | Comfort sensation |
|---|---|---|---|
| ≥+30 | Very hot | Incomprensible heat | Discomfort |
| +24..+30 | Hot | Slightly uncomfortable | Partial discomfort |
| +18..+24 | Warm | Comfortable | Comfort |
| +12..+18 | Slightly warm | Neutral | Partial comfort |
| +6..+12 | Slightly cool | Slightly uncomfortable | Partial discomfort |
| 0..+6 | Cool | Slightly uncomfortable | Partial discomfort |
| -12..0 | Cold | Uncomfortable | Partial discomfort |
| -24..-12 | Very cold | Uncomfortable | Discomfort |
| -30..-24 | Extremely cold | Incomprensible cold | Extremely discomfort |
| ≥-30 | Extremely cold | Incomprensible cold | Extremely discomfort |

ET index levels

Figure 17a: Bodman's index of weather severity and Effective Temperature (ET) levels definition.

### Summary for spring - summer 2026

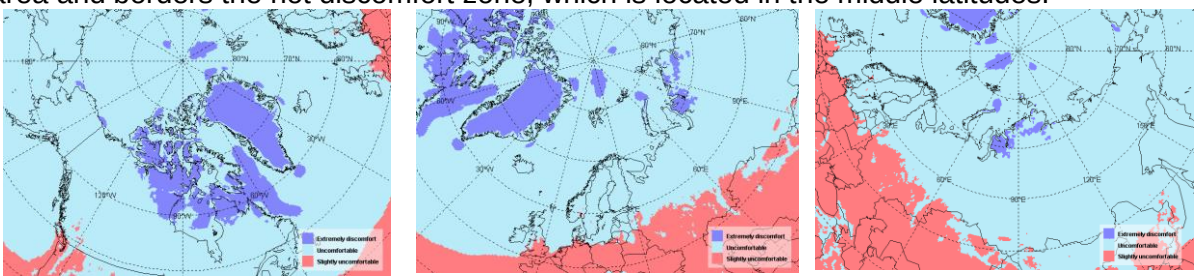
In spring 2026 (March - May), extremely severe conditions based on Bodman's weather severity index (S), were, as in 2025, again mostly not observed over the land territories of Eurasia and over the Eurasian Seas (Figure 17b). In the Central Arctic, extremely severe conditions were mostly not observed, which differs from previous years. The extremely severe zone shifted southward in the Central and Eastern Canada region into areas usually observed as severe (this appears as more severe conditions, in red, on the anomalies map). In the Eurasian and Nordic regions, there were mostly milder conditions (blue color), except in the Krasnoyarsk region in Siberia. Over Alaska and Canada, conditions were mostly more severe (red color) than normal.

In summer 2026 (June - July), the cold discomfort zone based on Effective Temperature (ET) spreads in the Arctic over sea areas, Greenland, Canadian Arctic Archipelago, Hudson Bay, and the land area around and over the northern shores of Eurasia from the Scandinavian

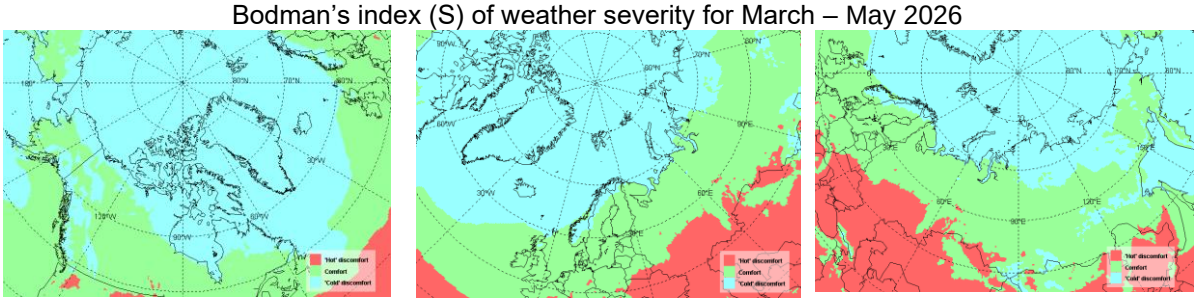
[2] Bodman's weather severity index *S* is defined using following formula $S = (1 – 0.04T)(1 + 0.272V)$, where *V* is wind speed (in m/ s) at 10 m above ground level, *T* is air temperature (in °C)

[3] Effective temperature *ET* is defined as $ET = T – 0{,}4(T – 10)(1 – f / 100)$, where *T* is air temperature (in °C) and f is relative humidity (%).

Peninsula to the Chukchi Peninsula (Figure 17b). The comfort zone dominates over the land area and borders the hot discomfort zone, which is located in the middle latitudes.



Bodman's index (S) of weather severity for March – May 2026



Effective temperature for June – August 2026

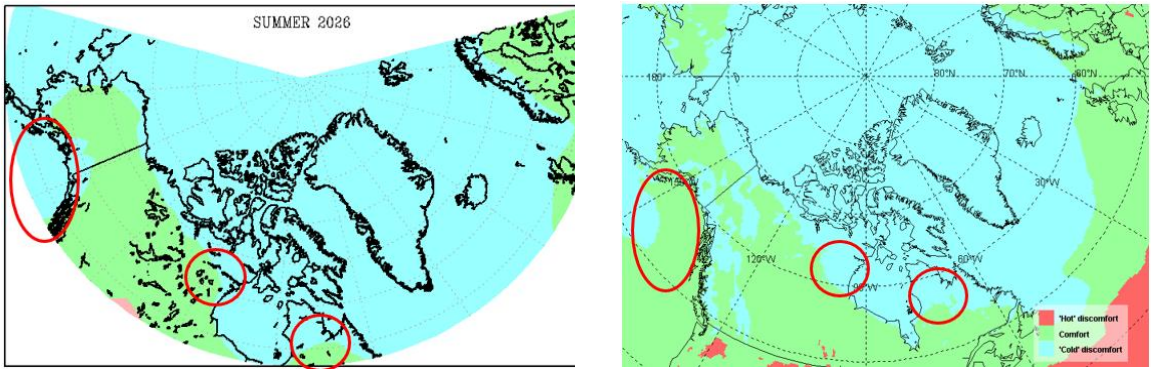
Figure 17b: Bodman's index (S) of weather severity for March – May 2026 and Effective temperature for June – August 2026. Maps produced by the AARI. Data source: CCCS ERA5.

In 2026, the border between the cold discomfort and comfort zones was similar to the previous year, except for the prevalence of the comfort zone over the land areas of Eurasia from the White Sea to the Yenisei Bay. The ET anomalies map to reference 1991-2020 period differs significantly in comparison with 2025 (not shown here, see presentation material for more details). There were milder conditions over most of the Arctic, with the strongest positive anomaly over Western Russia and the Barents and Kara Seas. Over the Nordic countries and seas, conditions were mostly close to normal. More severe conditions were observed only over Eastern Siberia, around the Sakha region.

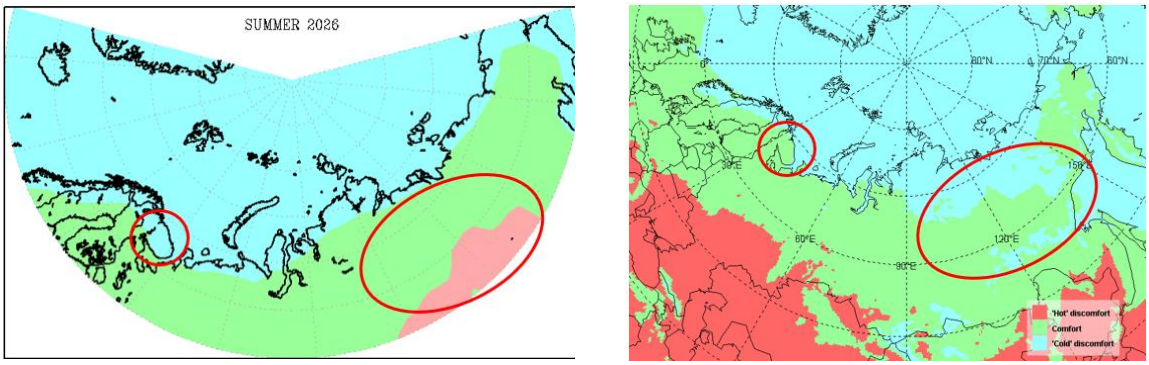
Based on Bodman index anomalies from 1991-2020 (not shown here, see presentation material for more details), September 2026 was rather similar to the previous year, with pronounced more severe than normal conditions over the Central Arctic. Another difference is more severe or near-normal conditions over Greenland (except its southern part). Milder than normal conditions were observed over Western Siberia, the Barents and Kara Seas, the Fram Strait, and partly over Eastern Canada. Near-normal conditions were observed over the Nordic countries, eastern Eurasia, parts of Eastern Canada, and over Western Canada and Alaska.

## Verification of summer 2026 forecast

For the Alaska and Canada region, the forecast was quite accurate for this region. It showed more severe conditions for the Gulf of Alaska, whereas according to the ERA5 reanalysis there was mostly a "comfort" zone. And for areas near Hudson Bay, by contrast, it showed a "comfort" zone instead of the cold discomfort zone indicated by ERA5 (Figure 18). For the Eurasian region, the forecast showed a cold discomfort area over the Kola Peninsula, while according to ERA5, there was a comfort zone. The main discrepancy occurred in Eastern Siberia, where the forecast underestimated the severity of conditions, indicating a comfort zone, whereas ERA5 showed the cold discomfort zone extending further inland from the shores. In addition, the hot discomfort zone's border in forecast lay far too far north compared with ERA5 (Figure 18).




Forecast ET based on ERA5 reanalysis




Forecast ET based on ERA5 reanalysis

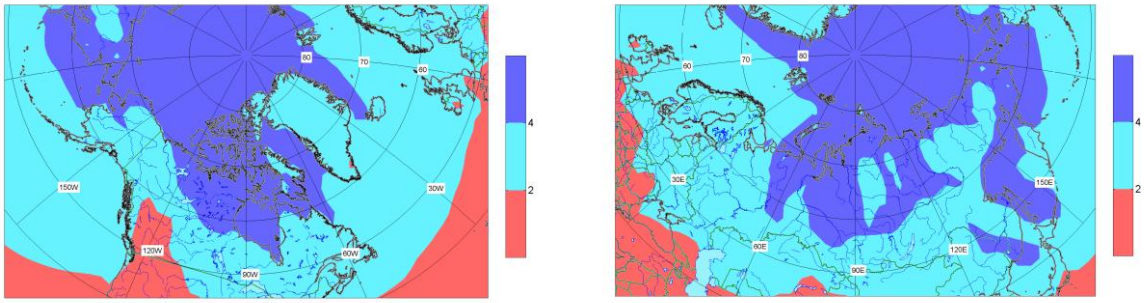
**Figure 18:** Bodman's index (S) of weather severity forecast (left) and ERA5 reanalysis estimate (right) for December 2025 – February 2026. Maps produced by the AARI and Hydrometcenter Russia. Data source: Hydrometcenter Russia and CCCS ERA5.

## Outlook for December 2026 – February 2027 (experimental)

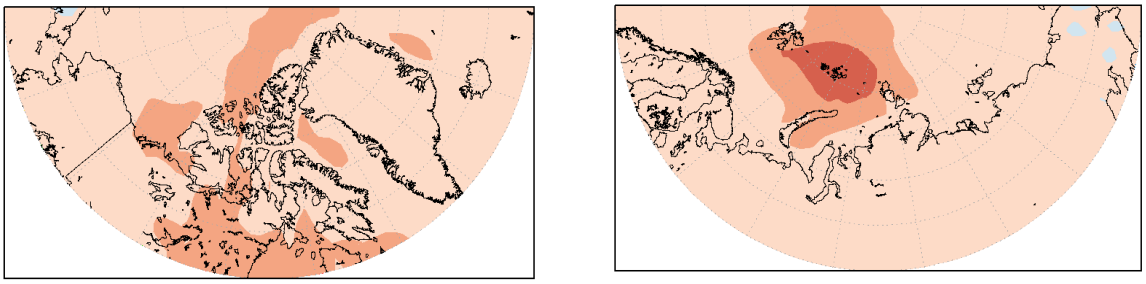
Outlook for winter season of 2026/2027 is based on Bodman's weather severity index (S). To calculate the S index values operational forecasts of the INM-CM6 model from 01.11.2026 were used (spatial resolution 2.5° x 2.5°, number of ensemble members – 30, hindcasts for period 1991-2020. December 2026 – February 2027 from 01.11.2026 is presented on figure 19 and summarized by the ArcRCC-N regions in table 9.

In the western hemisphere moderate discomfort (Figure 17a, Figure 19) is forecasted for most of Alaska, Canada's northwest territories, Yukon and southwest Nunavut. Extreme weather conditions are expected along the coast of Alaska, Nunavut and northern Quebec. In the eastern hemisphere (Figure 17a, Figure 19), extreme discomfort is forecasted for Western Siberia and Eastern Siberia and northern Chukotka with some minor areas of more comfortable conditions. In Iceland, Norway, Sweden, Finland weather conditions are expected to be moderately uncomfortable.

Western Hemisphere Eastern Hemisphere



Bodman's weather severity index forecast for December 2026 – February 2027 (DJF)



Bodman's weather severity index DJF forecast anomaly from 1991-2020

**Figure 19:** Bodman's weather severity index December 2026 – February 2027 (DJF) forecast and its anomaly from 1991-2020. Maps and data source: Institute of Numerical Mathematics Russian Academy of Science.

**Table 9** - December 2026 – February 2027 Bodman's weather severity index (S) forecast for ArcRCC-N regions

| Regions | S |
|---|---|
| Alaska and Western Canada | less severe* |
| Central and Eastern Canada | less severe |
| Western Nordic | less severe |
| Eastern Nordic | less severe |
| Western Siberia | less severe |
| Eastern Siberia | less severe |
| Chukchi and Bering | less severe |
| Central Arctic | less severe |

***less severe** - relative to average climatic values of S-index for 1991-2020

Based on Bodman's index anomaly values, the 2026-2027 December 2026 – February 2027 winter season will be close to the 1991-2019 norm, but slightly more comfortable conditions are expected in all Arctic regions, though transition to another gradation of thermal sensation (more comfortable, Figure 17a) would not occur. In the Western Nordic and Eastern Nordic nodes conditions will be characterized as severe and very severe. Alaska and Western Canada, Central and Eastern Canada Western Siberia, Eastern Siberia, Chukchi and Bering, Central Arctic – the winter is predicted to be extremely severe.

## Snow Water Equivalent November 2026 – January 2027 forecast (experimental product)

Snow water Equivalent (SWE) forecast is based on calibrated CanSIPS model. Experimental forecast for November 2026 – January 2027 is presented on Figure 20. Almost all Arctic regions

are expecting below normal snow, with an exception of eastern Siberian region and northern Alaska western Canada and northern eastern Canada.

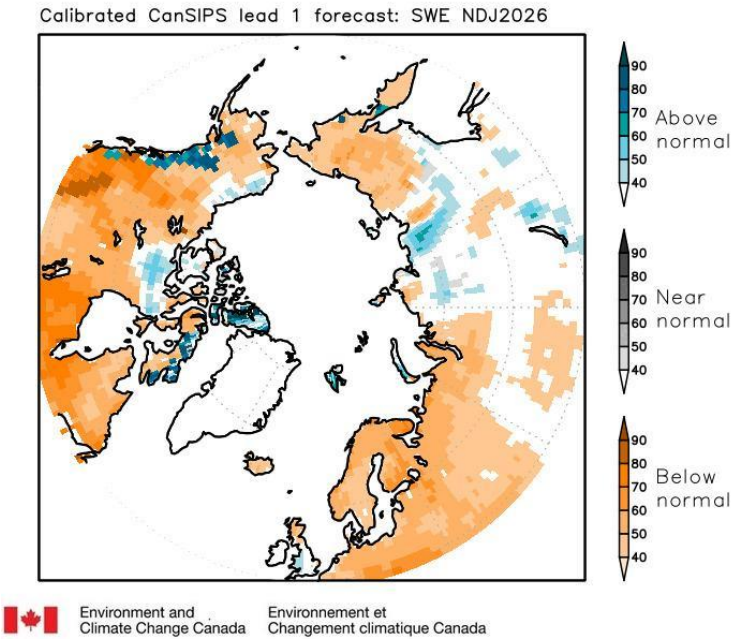



**Figure 20:** Snow water Equivalent forecast for November 2026 – January 2027.

## Observed extreme events during summer 2026

| Category | Location | Rarity | Impacts associated with event |
|---|---|---|---|
| **Alaska and Western Canada** | | | |
| Precipitation | Southeastern Alaska | Heavy precipitation in interior and southwestern Alaska let to unusually high river levels. | Rivers are the highways of rural Alaska. High flows make travel difficult. |
| Cool Temperatures | Alaska | July was especially cool across all of Alaska and the Yukon Territory in Canada. | The cool and cloudy (and wet) conditions in July led to delays in the timing of traditional subsistence activities. |
| Fire Conditions | Alaska & Western Canada | One of the least Active fire seasons in Alaska. | The Muktuk Fire in Tok, Alaska, (over 50 homes lost) was the only significant fire statewide in 2026. |
| **Central and Eastern Canada** | | | |
| Warm Temperatures | Nunavut<br>Nunatsiavut<br>Nunavik | Many communities recorded their warmest summer on record. An exceptionally warm June and July broke numerous daily maximum temperature records, including 25.4°C at Coral Harbour on June 22.<br>Goose Bay Airport hit 31.7°C on July 7th and 33.7°C on July 8th. By the end of July, Goose Bay Airport saw four consecutive days above 30°C, the first time since late June 1999.<br>Kuujjuarapik recorded two days with a humidex of 35 or higher, a rare occurrence for June in | Government of Nunavut issued a heat health advisory, noting prolonged heat events are uncommon and local infrastructure is not designed for extended periods of heat.<br>Wildfire smoke reduced air quality in parts of Labrador and prompted public health advisories during late June and early July |

| | | | |
|---|---|---|---|
| | | the region. Temperatures at Kuujjuaq averaged around 3°C above normal for the month. | |
| High Winds | ISR | July 24th, Tuktoyaktuk reported a wind gust of 63 km/h during a late-July storm system. | High winds caused power outages in Tuktoyaktuk and Inuvik, minor property damage and ferry service disruptions at Tsiigehtchic and along the Dempster Highway |
| Heavy Rainfall | ISR | July 24th, Paulatuk received 43.8 mm, resulting in its wettest July on record. Paulatuk's normal July precipitation of 25.2 mm. | |
| Sea Ice | ISR | Persistent thick first-year and multi-year pack ice.<br>Heavy ice conditions hindered navigation during summer 2026. | Heavy pack ice delayed a fuel resupply to the Inuvialuit Settlement Region by approximately three weeks |
| **Western Nordic** | | | |
| Temperature | East Iceland, July | Warmest July on record at several weather stations in eastern Iceland, including Teigarhorn (154-year record) and Dalatangi (88-year record) | None reported |
| Precipitation – Dry | Northeast and East Iceland, July | Exceptionally dry conditions, with July precipitation among the lowest on record.<br>Driest July on record at Dalatangi (88-year record). | None reported |
| Precipitation –Wet | Southwest and West Iceland, July | Unusually wet conditions in southwestern and western Iceland, particularly around mid-month.<br>July ranked among the wettest on record in western Iceland. | None reported |
| **Eastern Nordic** | | | |
| Temperature | Norway and Sweden | Cooler than normal many places in northern parts<br>Warmer than normal in southern parts | Large north/south gradient<br>Heat wave in southern parts, with periods with warmer than normal water temperatures |
| Precipitation | Scandinavia | Wetter in northern part<br>Drier in southern parts | Several stations recording more than 200 mm in northern Sweden in August.<br>Max monthly precipitation in August: Tornio Kaakkuri with 185.1 mm, Finland<br>Largest monthly anomaly: +124.2 mm at Ylitornio Meltosjärv (August), Finland<br>Nordland county, Norway, +41.2% (10th wettest)<br>Brekke i Sogn (Gulen, Vestland, Norway) 996,6 mm (57 % wetter than normal)<br>Flooding in northern parts of Sweden. Water shortage/ low flow / water levels in the south. |
| Lightning | Finland | Low (average overall lightning in June- Aug: 81.000 strikes) (September average: ca 2400 strikes) | overall lightning during Summer. June-Aug: approx. 29.000 strikes |

| | | | |
|---|---|---|---|
| | | | September 1200 strikes (ca 50% of September average) |
| **Western Siberia** | | | |
| Extreme fire danger (extreme drought, above-normal temperature, dry thunderstorms) | Yamalo-Nenets Autonomous Okrug | - | A state of emergency was declared twice: on 24 June (regional level) and on 30 July (federal and interregional levels)<br>A 10-year record burned area<br>Smoke and haze near settlements |
| **Eastern Siberia** | | | |
| Abnormally hot weather | Center of the Krasnoyarsk region, Yakutia | - | Temperature reached 36.7°C (Evenkiysky Municipal District)<br>Daily records were set<br>Heat exceeding 30°C during the polar day caused overheating and thermal discomfort in Yakutia |
| Extreme fire danger (above-normal temperature, dry thunderstorms) | Krasnoyarsk region | - | A state of emergency was declared on 10 June |
| Heavy rain | Southern Taimyr, Turukhansky and Evenkiysky Municipal Districts<br>Eastern and central Yakutia | - | 15-25 mm/12h<br>24.07 67mm/12h (450 km northeast of Yakutsk) - rise in river water levels, road washouts, mudflows, temporary closures of the regional and federal roads |
| Strong wind | Southern Taimyr, Turukhansky and Evenkiysky Municipal Districts | - | Up to 24 m/s |
| **Chukchi and Bering** | | | |
| Positive anomalies of the SST | Commander Islands | New event | The first large influx of Pacific bluefin tuna in the waters off Bering Island (Commander Islands) |

## Possible impacts for summer 2026

| Economy sector/ Livelihood conditions | Outlook | Impacts associated |
|---|---|---|
| **Alaska and Western Canada** | | |
| All | Wildfires | There were a few days of impactful wildfire smoke, but overall, this was a much-reduced hazard compared to recent summers. |
| **Central and Eastern Canadian Arctic** | | |
| Subsistence fishing and hunting | Higher than normal temperatures, delayed freeze up | Delayed sea ice formation<br>Delayed subsistence fishing/hunting<br>Unpredictable shift in fresh water availability<br>On water activities stretching into November – higher risk (storm season) |
| Tourism | Higher than normal temperatures, delayed freeze up, but increases in occurrences of drifting ice | Increasing tourism through the NWP, higher risk for SAR requests |
| Marine Traffic Sea Lift, Resupply | Higher than normal temperatures, delayed freeze up | Sealift extending their operational window, higher risk for complications |
| Search and Rescue (SAR) cases are increasing year over year. Weather is one of the top 5 causes for SAR activations in the Canadian Arctic | | |
| **Western Siberia, Eastern Siberia, Chukchi and Bering** | | |
| Infrastructure | Temperature above normal | Permafrost warming, delayed opening and shorter operating season of winter roads and ice crossings |
| Nature | Temperature above normal | Disruption of the lives of Arctic animals such as walruses, seals and reindeer, which depend on the ice for hunting and breeding. |
| Health and safety | Temperature above normal | Milder conditions for outdoor work |

## Data sources and useful links:

Arctic and Antarctic Research Institute
- Seasonal bulletins of the state of Arctic (in Russian)
- Seasonal NSR outlooks (in Russian)
- ArcRCC-N NE node monthly and seasonal graphs for the Arctic ECVs
- ArcRCC-N NE node Arctic Ocean blended ice charts

Copernicus Climate Change Service
- ERA5 monthly averaged data on pressure and single levels (ERA5)
- Marine environment monitoring service (CMEMS)
- GloFAS operational global river discharge reanalysis (ERA5-GloFAS)

Danish Meteorological Institute
- Polar Portal
- Ocean and sea ice services

Finnish Meteorological Institute

Environment Canada and Climate Change
- Seasonal forecasts
- Canadian Ice Service latest ice conditions and forecasts

ESA CryoSAT-2 sea-ice thickness estimates (AWI)

Icelandic Meteorological Office

National Snow and Ice Data Center (NSIDC)
- NSIDC Near-Real-Time DMSP SSMIS Daily Polar Gridded Sea-ice Concentrations

NOAA/National Weather Service Alaska Forecast Office
- NWS Alaska Sea Ice Program

Norwegian Meteorological Institute

Swedish Meteorological and Hydrological Institute

US National Ice Center

WMO Arctic Regional Climate Centre - Network (ArcRCC-N)

WMO Global Cryosphere Watch (GCW)
- GCW SnowWatch
- Rutgers Univercity Global Snow Lab

WMO Lead Center for Long-Range Forecast Multi-Model Ensemble
- Seasonal forecast

## Background and Contributing institutions

The Arctic seasonal climate summary and outlooks were prepared for ACF-18 in partnership between the Canadian, Danish, Finnish, Icelandic, Norwegian, Russian, Swedish and United States meteorological agencies, sea-ice services and with contributions from the WMO GCW. The ArcRCC-Network, a collaborative arrangement with formal participation by all the eight Arctic Council member countries, is from June 2024 in operational phase as a WMO RCC-Network by the WMO Executive Council in 2024. For more information, please visit https://arctic-rcc.org/.

## Acronyms

| | |
|---|---|
| AARI | Arctic and Antarctic Research Institute |
| ArcRCC-Network | Arctic Regional Climate Centre Network (https://www.arctic-rcc.org) |
| ACF | Arctic Climate Forum |
| AMAP | Arctic Monitoring and Assessment Programme |
| CAA | Canadian Arctic Archipelago |
| CanSIPSv2 | Canadian Seasonal to Inter-annual Prediction System |
| CAP | Common Alerting Protocol |
| CCCS | Copernicus climate change service |
| CFSR | U.S. NSF Climate Forecast System Reanalysis |
| CIS | Canadian Ice Service |
| CMEMS | CCCS Marine environment monitoring service |
| DMI | Danish Meteorological Institute |
| ECCC | Environment and Climate Change Canada |
| ECMWF | European Centre for Medium-Range Weather Forecasts |
| ESA | European Space Agency |
| FMI | Finnish Meteorological Institute |
| GCW | Global Cryosphere Watch |
| GPCs-LRF | WMO Global Producing Centres Long-Range Forecasts |
| GloFAS-ERA5 | CCCS operational global river discharge reanalysis |
| GloSea5 | Met Office Global Seasonal forecasting system version 5 |
| H50, H500 | Geopotential heights 50hPa, 500hPa |
| HYCOM-CICE | HYbrid Coordinate Ocean Model, Coupled with sea-ice |
| IICWG | International Ice Charting Working Group |
| IMO | Icelandic Meteorological Office |
| IOC | Intergovernmental Oceanographic Commission |
| LC-LRFMME | WMO Lead Centre for Long Range Forecast Multi-Model Ensemble |
| MSLP | Mean sea level pressure |
| NAO | North Atlantic Oscillation |
| NIC | National Ice Center (United States) |
| NCAR | National Center for Atmospheric Research |
| NCAR CFSR | National Center for Atmospheric Research Climate Forecast System Reanalysis |
| NMI | Norwegian Meteorological Institute |
| NOAA/NWS/NCEP/CPC | National Oceanic and Atmospheric Administration/National Weather Service/National Centers for Environmental Prediction/Climate Prediction Center (United States) |
| NSIDC | National Snow and Ice Data Center (United States) |
| MME | Multi-model ensemble |
| NSR | Northern Sea Route |
| NWP | Northwest Passage |
| PIOMAS | Pan-Arctic Ice Ocean Modeling and Assimilation System |
| RCC | WMO Regional Climate Centre |
| RCOF | Regional Climate Outlook Forum |
| SAT | Surface air temperature |
| SST | Sea surface temperature |
| SMHI | Swedish Meteorological and Hydrological Institute |
| SWE | Snow Water Equivalent |
| WMO | World Meteorological Organization |